

09/591,017

D558

REMARKS

Claims 10-19, 21-26, and 28 are currently pending in the subject application and are presently under consideration. A version of all pending claims is found on pages 2-5. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein.

**I. Rejection of Claims 10-18, 21-26, and 28 Under 35 U.S.C. §103(a)**

Claims 10-18, 21-26, and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Munakata *et al.* (U.S. Patent No. 4,827,143) in view of Yufa (U.S. Patent No. 6,034,769) and Tamai (JP-411167890). It is respectfully submitted that this rejection should be withdrawn for at least the following reason. Neither Munakata *et al.*, Yufa, nor Tamai, alone or in combination, teach or suggest applicants' claimed invention.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must be found in the prior art and not based on the Applicant's disclosure*. See *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Independent claims 10 (and dependent claims 11-18 and 21) and 22 (and dependent claims 23-26 and 28) recite limitations with respect to determining a *particulate count within the chamber, and a processor that initiates dynamic cleaning of the chamber until the particulate count reaches an acceptable level*. In particular, applicants' claimed invention provides a novel system that discerns airborne particulates and dynamically cleans the chamber of gas-phase particulate matter when a contaminant particle count exceeds a threshold. Neither Munakata *et al.*, Yufa, nor Tamai (alone or in combination) teach or suggest such features of

09/591,017

D558

applicants' claimed invention.

In contrast, Munakata *et al.* discloses a monitoring means that involves obtaining a particulate count in a liquid or solid, rather than in a gas-phase. Further, Munakata *et al.* neither teaches nor suggests cleaning a chamber of gas-phase particulate matter in real time, *e.g.* dynamically, in order to ensure and maintain aerosol particulate contaminant levels below a threshold within the chamber. Moreover, Munakata *et al.* does not address or mention utilizing the particulate count in the manner disclosed in the subject invention, *e.g.* using a gas-phase particulate count to dynamically clean a chamber of airborne particulate matter until the airborne particulate count reaches an acceptable level. It is apparent then, that Munakata *et al.* neither teaches nor suggests each and every element of the applicants' subject invention.

The Examiner cites Yufa to rectify various deficiencies inherent in Munakata *et al.* In particular, Examiner relies on Yufa to teach or suggest converting an analog electrical signal to a digital signal. However, Yufa like Munakata *et al.* fails to either teach or suggest *a processor that determines a particulate count within a chamber whereby the processor initiates dynamic cleaning of the chamber until the particulate count reaches an acceptable level.* Thus, Munakata *et al.* either alone or in combination with Yufa fails to teach or suggest each and every element of the claimed invention to one ordinarily skilled in the art.

The Examiner lastly cites Tamai to rectify deficiencies presented by Yufa and Munakata *et al.* While Tamai presents a method and apparatus to vent a chamber of particulate matter based upon a particle count to prevent dust from adhering to the material, such cleaning is only performed when the material is transported and introduced into the chamber *via* valve 18. Under Tamai, once the chamber is cleaned to an acceptable level, the cleaning facility ceases to operate; monitoring for particulate levels and cleaning of the chamber is not a continuous process. The applicants' claimed invention on the other hand, is a dynamic process. The monitoring and cleaning of the chamber is a continuous process applicable to all phases of the entire process, rather than being disjunct; confined solely to the period immediately subsequent to the introduction of the material into the chamber, as is the case in Tamai. Thus, Tamai does not teach or suggest *continuous dynamic cleaning of the chamber* as in the claimed invention.

Regarding claims 12-14, applicants' representative respectfully traverses the Examiner's statement. As stated in Reply to Office Action Dated April 18, 2003, the Examiner acknowledges that Munakata *et al.* does not teach or suggest that the measuring system can be

09/591,017

D558

applied to a laser Doppler system, interferometry, or spectrometry. However, the Examiner subsequently states such features are well-known in the art and would have been obvious to one having ordinary skill in the art at the time the invention was made. It therefore appears that Examiner is taking official notice to the fact that it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the system of Munakata *et al.* into a laser Doppler system, interferometry, and/or spectrometry as required by the subject invention. Applicants' representative respectfully traverses the Examiner's aforementioned statements and request that Examiner cite a reference in support of his position pursuant to MPEP §2144.03.

In view of at least the foregoing, it is respectfully submitted that neither Munakata *et al.*, Yufa, nor Tamai, alone or in combination, teach or suggest applicants' claimed invention as recited in independent claims 10 (and dependent claims 11-18 and 21 which depend from claim 10) and 22 (and dependent claims 23-26 and 28 which depend from claim 22). Accordingly, it is requested that this rejection should be withdrawn.

## **II. Rejection of Claims 16, 19, and 26 Under 35 U.S.C. §103(a)**

Claims 16, 19, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Munakata *et al.*, Yufa, and Tamai as applied to claims 10 and 22 above, and further in view of Harwell *et al.* (U.S. Patent No. 5,942,672). It is respectfully requested that this rejection should be withdrawn for at least the following reasons. Neither Munakata *et al.*, Yufa, Tamai, nor Harwell *et al.*, alone or in combination, teach or suggest, each and every limitation of the subject invention. Further, there is no motivation to combine the references in the manner suggested other than *via* employment of applicants' specification as a 20/20 hindsight-based roadmap to achieve the purported combination.

As discussed *supra*, the present claimed invention relates to a system that monitors particulate counts with respect to airborne particulate matter within a chamber. When a contaminant particulate count exceeds a threshold, an alarm is sounded and/or the processor initiates dynamic removal of contaminant particulate until an acceptable contaminant particulate count is restored within the chamber.

The arguments set forth above with respect to claims 10-18, 21-26 and 28 are applicable herein as well. For the aforementioned reasons, Munakata *et al.* neither alone or in combination with Yufa or Tamai, teaches or suggests each and every element of the applicants' claimed

09/591,017

D558

invention to one ordinarily skilled in the art.

Regarding claim 16, Examiner cites Harwell *et al.* to rectify deficiencies presented in Munakata *et al.*, Yufa and Tamai. Specifically, Examiner relies on Harwell *et al.* for its apparent teaching of *the total number of particles counted during a sample window is compared to a set point representing a threshold value; and if the count exceeds the threshold value, an alarm is provided by the particle sensor control.* (Harwell *et al.*, column 2, lines 20-24). However, Harwell *et al.* relates to physical vapor deposition sputter coating process wherein a heavy gas, e.g. argon, is ionized in a vacuum chamber. The ionized gas subsequently impacts a target, e.g. aluminum or titanium, and thereafter the target material atoms sputter off the target material and are deposited on a substrate. During this sputtering process, not only are target material atoms deposited on the substrate, but target material atoms are also deposited on other surfaces and shields within the vacuum chamber. Over time the accreted sputtered material on these extraneous surfaces is augmented to the point where removal is mandatory, for otherwise during the heating and cooling temperature cycles that the vacuum chamber and its constituent parts are subject to, there is a tendency for the accreted sputtered material to flake off the extraneous surfaces in the form of small particles. These small sloughed off particles, normally being conductive sputtered material, have a high probability of being deposited across the terminals or across conductive paths of a substrate rendering the affected substrate defective. Thus, Harwell *et al.* discloses an alarm and a particulate counter to determine the best time in which to perform cleaning and maintenance of the vacuum chamber. The cleaning and maintenance process in Harwell *et al.* renders the vacuum chamber inoperative during maintenance and cleaning. (Harwell *et al.*, column 1, line 55). Since the chamber in Harwell *et al.* is rendered inoperable during the cleaning process, unlike the subject invention, cleaning of the chamber is clearly not a dynamic process. Further, the cleaning and maintenance feature disclosed in Harwell *et al.*, unlike the applicants' claimed invention, can never be dynamically initiated during the coating process, for otherwise the vacuum necessary to ionize the heavy gases would be compromised by initiation of the cleaning and maintenance cycle. Thus, Harwell *et al.* does not teach or suggest each and every claim element disclosed in the subject claimed invention.

Moreover, the Examiner cites the motivation to combine Harwell *et al.* with the above mentioned references as: *the set point value is empirically determined to provide the most efficient time at which to initiate a maintenance and cleaning of the processing chamber,*

09/591,017

D558

(Harwell *et al.*, column 2, lines 24-27). Since Harwell *et al.* alone does not disclose a dynamic cleaning method, and neither does Munakata *et al.*, Yufa, nor Tamai, alone or in combination, disclose a dynamic cleaning process, there is no proper and acceptable basis for a rejection under 35 U.S.C. §103. In essence, Examiner is basing the rejection on the assertion that it would have been obvious to do something not suggested in the art based on the advantages disclosed in the applicants' specification. This sort of rationale has been condemned by the CAFC as being sophistic; see e.g. *Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987). Furthermore, absent some teaching or suggestion in the prior art to combine the elements, it is insufficient to establish obviousness by claiming that the separate elements of the invention existed in the prior art. *Arkie Lures Inc. v. Gene Larew Tackle Inc.*, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997). Thus, a *prima facie* case of obviousness has not been established against the applicants' claimed invention. Further, the subject invention would not have been obvious to one ordinarily skilled in the art.

Regarding claims 19 and 26, applicants' representative respectfully traverses Examiner's statement. Examiner tacitly acknowledges that Munakata *et al.* does not teach or suggest that a mirror could be employed to facilitate the operation of the system. Yet, Examiner subsequently states such features are well known in the art and would have been obvious to one having ordinary skill in the art at the time the invention was made. It appears that Examiner is taking official notice of the fact that it would have been obvious to one ordinarily skilled in the art to employ a mirror to direct light, as is disclosed in applicants' claimed invention, within the system as disclosed in Munakata *et al.* Applicants' representative respectfully traverses the Examiner's aforementioned statements and request that Examiner cite a reference in support of his position pursuant to MPEP §2144.03.

In view of at least the foregoing, it is respectfully submitted that neither Munakata *et al.*, Yufa, Tamai nor Harwell *et al.*, alone or in combination, teach or suggest applicants' claimed invention as recited in dependent claims 16, 19 and 26. Accordingly, it is requested that this rejection should be withdrawn.

09/591,017

D558

**III. CONCLUSION**

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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